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Parklawn Computer Center

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Computer Training Courses

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ORIGINAL

U.S. Department of Health and Human Services
Public Health Service
Food and Drug Administration

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Food and Drug Administration
Parklawn Computer Center
Rockville, Maryland 20857

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GENERAL INFORMATION

The Parklawn Computer Center (PCC) is pleased to announce the 1988 Computer Training Program. The purpose of this program is to provide a source of training responsive to the needs of the PCC user community.

PCC offers a variety of courses designed for ADP project managers, computer experts, and beginners in the data processing field. Courses are focused to assist users in career development and to provide a knowledge framework for enhanced computer systems applications.

This brochure is designed to be a planning guide for computer training. Students and supervisors should review the description of each course and the instruction formats paying particular attention to prerequisites. Courses are available to all PCC registered users who are employees of the Government. There is no tuition; however, special materials or resources may be charged for some courses. All applicants must fulfill prerequisite training or experience requirements stated in each course description.

INSTRUCTION FORMATS

PCC supports three instruction formats: Lecture, Computer Based Training (CBT), and Audio Visual Assisted Instruction (AVAI). Each format requires a different learning environment and has its own advantages and disadvantages.

LECTURE provides students an opportunity for study through lecture, workshop, or seminar. PCC has a training room with terminals dedicated to hands-on instruction.

Lecture classes are taught primarily by PCC staff and accommodate six to fifteen students depending on the level of hands-on exercises. Emphasis is placed on the relationship between the PCC computer operating system and application systems. Requests for off-site instruction may be considered if adequate facilities and terminals are available.

COMPUTER BASED TRAINING (CBT) provides students the opportunity to run a specific program on the PCC computer system. Students may use terminal equipment in their own workplace and learn at their own pace.

CBT courses consist of several sessions or lessons which take from two to fifteen hours to complete. Students may use any terminal that connects with the PCC mainframe computer to take courses. Those who do not have access to a terminal may use one in the PCC Public Terminal Room (2B-70).

AUDIO VISUAL ASSISTED INSTRUCTION (AVAI) provides students with a set of audio and visual materials and text. Students use a study room equipped with video recording equipment and a color monitor, and work without interruption.

AVAI courses are leased monthly by the Center. A lead time of six weeks is normally required for PCC to acquire the course materials and to schedule the study room. Off-site users who have compatible audio and video equipment may make arrangements to have the course given at their site. Course materials may be used for one month free of charge.

REGISTRATION AND SCHEDULING INFORMATION

The registration procedures and scheduling information for the three formats of instruction outlined below should be followed carefully:

LECTURE Students must submit the "vendor copy" of the Training Nomination and Authorization form (HHS-350), or its equivalent, at least **ten days** before the start of the course. Registration is not complete until confirmed by the PCC Training Coordinator. Schedules are published twice a year: January through June and July through December and are sent to all users receiving this brochure.

CBT Students requesting CBT courses must be registered TSO users and must submit a CBT application form (provided in back of brochure) for each course being requested. Upon receipt of forms, a packet containing logon procedures, training password, and course workbook is sent to the student.

AVAI Students may register for these courses by submitting the "vendor copy" of the Form HHS-350. Upon receipt of this form courses are ordered and when received students are contacted to reserve the study room.

The PCC Training Coordinator maintains student rosters and provides students with details regarding scheduled courses.

All training forms should be sent to:

Parklawn Computer Center
Training Coordinator, HFA-64
Parklawn Building, Room 2B-40
5600 Fishers Lane
Rockville, Maryland 20857

DEVELOPMENT PATHS

The PCC Training Program offers users an opportunity to learn to use computer resources. The curriculum is focused on PCC-specific hardware and software and includes concepts, facilities, and disciplines necessary for successful automated data processing management and operation. Work experiences, education, and project assignments define the basis when evaluating training needs.

Courses outlined in this brochure are listed in groups according to subject. Within each subject there are several classes offered. Under each grouping of courses there are usually three formats for instruction: Lecture, CBT, and AVAI. Whenever Lecture courses are full or not conveniently scheduled, students are encouraged to take CBT courses. In cases where CBT courses are not available, AVAI courses are a viable alternative.

BEGINNERS Students who have never used computers should begin training with introductory and operating system courses before programming languages. Those seeking to develop the knowledge base necessary to pursue data processing related jobs will find these courses helpful. This training program should not be considered the only source for meeting educational requirements.

EXPERIENCED Students who have some computer application experience and who have never used a large scale mainframe computer should take the Lecture course "Mainframe Processing at PCC" found on page 9. This course provides an overview of all facilities and procedures offered by PCC.

ADVANCED Students who are veteran users of PCC, usually computer specialists, systems analysts, or computer programmers should skip directly to the group where specific skills are needed.

COURSE DIRECTORY

The directory of classes below lists the courses grouped by subject and format.

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Using SAS/FSP	CBT
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Communications and Local Area Networks	CBT
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Principles of Project Management	CBT
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INTRODUCTION TO COMPUTERS

Courses in this group discuss overviews of computer hardware and software and the concepts necessary for students to understand the role of data processing and application systems. Students learn the appropriate terms used in information processing and how to apply them.

Introduction to ADP (Automatic Data Processing) at PCC

Course Code: 110L Format: Lecture

Prerequisite: None

Time: Two hours

Content: This course acquaints nonprogrammers with the fundamentals of data processing as it applies to the PCC operating environment.

Mainframe Processing at PCC

Course Code: 115L Format: Lecture

Prerequisite: None

Time: Fifteen hours

Content: This course is designed for students unfamiliar with mainframe processing. The student is introduced to the PCC hardware, operating standards, and procedures. Included are hands-on exercises to provide the student with the basic concepts of TSO/ISPF.

Introduction to ADP for End Users

Course Code: DPUSER Format: CBT

Prerequisite: None

Time: Two to three hours

Content: This course describes the major functions of a computer at the most elementary level.

1: Overview of computer systems
2: Functional steps of a computer
3: Components of computer systems: hardware
4: Components of computer systems: software
5: Components of computer systems: people
6: Using the computer to serve business needs
7: Inside the computer

Developing ADP Skills for End Users

Course Code: DPSKIL Format: CBT

Prerequisite: DPUSER

Time: Six hours

Content: This course explains concepts of programming necessary for users who are learning to do their own computing. It includes text editors, sorting concepts, computer user libraries, and data backup and recovery procedures.

1: The environment
2: How to use the computer
3: Data concepts
4: Text editors
5: Calculations
6: Language commands or statements
7: Reports
8: Selection and logic
9: Sorting
10: Grouping and control breaks
11: Debugging: what can go wrong
12: Library functions
13: Cost

Introduction to the Information Center

Course Code: ICUSER Format: CBT

Prerequisite: None

Time: One to two hours

Content: This course is designed for users of an Information Center. It covers how to use a computer terminal and provides an overview of programming instructions and reporting concepts.

1: Overview of the Information Center
2: Information Center equipment
3: Information Center functions
4: Information concepts
5: Getting the work done
6: Instructing the computer
7: Reports and queries
8: Report preparation
9: Using the Information Center

Computer Literacy

Prerequisite: None Format: AVAI

Time: Two hours for each module

Content: Courses in this group provide the novice computer user with basic concepts and terms. It addresses a wide range of computer topics from the history of electronic data processing to the use of computers today. Students may select an entire series or any part of a series.

INTRODUCTION TO COMPUTERS

7MI-A99 COMPUTERS AT WORK: CONCEPTS AND APPLICATIONS

A01	Evolution: Computers, Yesterday and Today
A02	The Computer System: Machines and People
A03	Hardware and Software
A04	Sequential Processing Applications
A05	Direct Access Applications
A06	Systems Development: A Case Study
A07	Computers in Business
A08	Computers in Society
A09	Teleprocessing Systems
A10	Data Base Processing Systems
A11	Distributed Processing Systems
A12	Microcomputers: The Personal Assistant
A13	The Automated Office
A14	Computer Crime and Security
A15	Computer Careers and Your Future

7-4XX COMPUTERS AND INFORMATION PROCESSING

410	Computers Then and Now
420	Data Representation and the Processor
430	Data Storage and Input/Output Devices
440	Data Communications
450	Software and Data Management
460	Information Systems
470	Information Systems Development
480	Computers: Opportunity and Challenge

26-1XX COMPUTER PROGRAMMING FUNDAMENTALS

010	Introduction to Data Processing
020	Introduction to Business Systems
110	Program Structure
120	Program Logic
250	Edit Programming Logic
260	Testing
270	Data Representation
310	Report Programming Logic
340	Sequential Update Programming Logic
360	Table Programming Logic

INTRODUCTION TO COMPUTERS

7EB-A99 BASIC: AN INTRODUCTION TO COMPUTER PROGRAMMING

- A01 Introduction, Printing, Storage and Assignments, and Input
- A02 Arithmetic, Simple Loops, Decisions, and FOR-Loops
- A03 Character Strings, Arrays, Program Design and Planning, and Reading of Internal Data
- A04 Sorting, Subroutines, File Handling, and Closing Remarks

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TERMINAL SYSTEMS AND TEXT EDITING

Courses in this group are primarily focused on the Time Sharing Option (TSO) which the computer user needs when using the mainframe computer. Users who need text processing only should consider Document Composition Facility (DCF) and WYLBUR. Students should understand basic ADP before taking courses in this group.

TSO (Time Sharing Option)

Course Code: 455L Format: Lecture

Prerequisite: Programming and JCL experience

Time: Eighteen hours

Content: This course familiarizes programmers with TSO. It is divided into instruction sessions to teach programmers the use of the commands through terminal practice sessions. The course includes an introduction to CLISTS and ISPF/PDF, the full-screen version of TSO.

ISPF (Interactive System Productivity Facility)

Course Code: 458L Format: Lecture

Prerequisite: TSO and JCL experience

Time: Eighteen hours

Content: This course teaches the fundamentals of ISPF and the use of full-screen terminals. Emphasis is on the BROWSE feature, ISPF EDIT, and the DATA UTILITIES.

USING TSO

Course Code: TSOUSE Format: CBT

Prerequisite: None

Time: Two and one-half hours

Content: This course is designed for new TSO users. It teaches the student to use TSO commands and how to create and manage datasets using TSO.

1: Introduction to TSO
2: Learning TSO dataset names
3: Managing TSO datasets
4: Writing allocate statements
5: Managing batch jobs

Using TSO Effectively

Course Code: TSOE Format: CBT

Prerequisite: TSO experience

Time: Twelve to fifteen hours

Content: This course teaches advanced TSO commands including TSO EDIT subcommands, the Interactive System Productivity Facility (ISPF) editor, and Command List (CLIST) facilities.

Using ISPF Format: CBT

Course Code: SPFUSE

Prerequisite: None

Time: Eight to nine hours

Content: This course provides the fundamentals of data management through the ISPF menus including defining major program function keys, editing, printing, creating, and deleting of datasets, and using dialog manager functions.

1: Why use ISPF
2: Fundamentals of data management
3: Operational and procedural features of ISPF
4: Managing data with ISPF
5: Editing data
6: Partitioned datasets
7: More on datasets
8: The utilities
9: Advanced ISPF usage

Document Composition Facility

Course Code: DCF Format: CBT

Prerequisite: TSO experience

Time: Three hours

Content: This course is an introduction to SCRIPT/VS control words and how to use DCF Generalized Markup Language and the SCRIPT command. DCF is necessary to use the text preparation features of the mainframe high-speed laser printer.

TERMINAL SYSTEMS AND TEXT EDITING

Using WYLBUR

Course Code: WYLBUR Format: CBT

Prerequisite: None

Time: Three hours

Content: This course is a tutorial for OBS WYLBUR designed for the beginner. It presents the basics of text editing and command procedures.

Terminal Systems (TSO/ISPF)

Prerequisite: Programming experience Format: AVAI

Time: Approximately two hours for each module

Content: Courses in this group provide application programmers knowledge necessary to develop online systems using TSO and ISPF function. Students should have an understanding of data processing concepts and programming experience before taking this series.

18-0XX THE TSOE SERIES

- 010 Introduction to TSO
- 020 Creating Datasets with TSO
- 030 Manipulating Datasets with TSO
- 040 TSO Background Processing
- 050 TSO Foreground Processing - I
- 060 TSO Foreground Processing - II
- 070 COBOL Interactive Debug

18-3XX ISPF PROGRAM DEVELOPMENT FACILITY

- 310 Introduction to ISPF/PDF
- 320 Creating Datasets I
- 330 Creating Datasets II
- 340 Foreground Processing and TSO Under ISPF/PDF
- 350 Background Processing
- 360 Browsing and Modifying Datasets
- 370 Using ISPF/PDF Utilities

18-4XX ISPF DIALOG MANAGEMENT SERVICES

410 Introduction to ISPF Dialog Management
420 Basic Panel Coding
430 Additional Panel Specification and Dialog Testing
450 Advanced Dialog Preparation
460 File Tailoring Services
470 Table Services

18-1XX TSO PROGRAMMABLE CLISTS

110 Programmable CLISTs: General Processing
120 CLISTs for Application and System Maintenance
130 Advanced CLIST Programming Facilities

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OPERATING SYSTEM

Courses in this group deal with technical procedures unique to mainframe computer processing ranging from system architecture to the specifics of batch processing Job Control Language. Students should know ADP and programming concepts before selecting courses offered in this group.

JCL and Processing Procedures at PCC

Course Code: 210L Format: Lecture

Prerequisite: Programming experience

Time: Twenty-two hours

Content: This course presents an in-depth definition of Job Control Language (JCL) and Job Entry Subsystem (JES2) control statements and associated parameters necessary for batch processing. Topics discussed are job stream design, input/output dataset definitions, job routing techniques, and cataloged procedures.

Dataset Management at PCC

Course Code: 240L Format: Lecture

Prerequisite: Mainframe Processing at PCC;
JCL experience

Time: Nine hours

Content: This course focuses on the Tape Management System and the DASD Automated Space Management System used for managing datasets. It covers dataset naming conventions, retention periods, dataset inventory procedures, and archiving and retrieving datasets necessary to properly secure user information systems.

Basic JCL

Course Code: JCLUSE Format: CBT

Prerequisite: None

Time: Ten hours

Content: This course provides the fundamentals of dataset storage and how to specify DD statements, to override cataloged procedures, and to create and use partitioned dataset libraries.

1: Why JCL
2: JCL and the operating system
3: JCL for a job
4: The DD statement
5: Using cataloged procedures
6: Datasets
7: JCL for disk datasets
8: JCL for tape datasets
9: More on job steps
10: What can go wrong
11: Partitioned datasets

Using SORT/MERGE Utilities

Course Code: SMUSER Format: CBT

Prerequisite: Introduction to ADP; JCL experience

Time: Four and one-half hours

Content: This course explains the fundamentals of using the SORT/MERGE functions in mainframe data processing. These tools are critical for programmers to learn when handling various file processing procedures.

1: Importance of sorting
2: Sorting concepts
3: Ways to sort
4: Using the SORT/MERGE utility
5: The sort statement
6: Merging datasets
7: Other SORT/MERGE statements
8: Designing sorts
9: What can go wrong
10: SYNCSORT features
11: CA-SORT features
12: Final summary

MVS/XA Data Processing Concepts

Prerequisite: Introduction to ADP Format: AVAI

Time: Approximately two hours for each module.

Content: Courses in this group provide the mainframe computer programmer with the knowledge of the IBM system architecture including hardware and software. Students may select an entire series or any part of a series.

OPERATING SYSTEM

23-2XX MVS/SP/XA VSAM

- 210 Introduction to MVS/SP/XA VSAM
- 220 Using MVS/SP/XA VSAM
- 230 MVS/SP/XA VSAM Alternate Indexes
- 240 MVS/SP/XA VSAM Security Facilities

12-79X VSAM DEBUGGING

19-2XX IMPACT OF MVS/XA

- 210 MVS/XA Features
- 220 MVS/XA Migration

19-4XX MVS/XA Architecture

- 410 Understanding XA Components
- 420 Exploiting XA Capabilities

23-0XX MVS/SP/XA JOB CONTROL LANGUAGE

- 010 Introduction to MVS/SP/XA JCL
- 020 Basic MVS/SP/XA JOBS
- 030 MVS/SP/XA Sequential Datasets: Input
- 040 MVS/SP/XA Sequential Datasets: Output
- 050 MVS/SP/XA Multi-Step JOBS
- 060 MVS/SP/XA Partitioned Datasets
- 070 MVS/SP/XA Job Structure: Additional Parameters
- 080 MVS/SP/XA Dataset Usage: Additional Parameters
- 090 MVS/SP/XA Cataloged Procedures
- 095 The MVS/SP/XA JCL Listing

23-1XX ADVANCED MVS/SP/XA JCL

- 110 Controlling Job Processing
- 120 Writing Efficient JCL
- 130 Restarting Jobs
- 140 Writing Cataloged Procedures for Production

OPERATING SYSTEM

23-3XX MVS/SP/XA UTILITY PROGRAMS

- 310 Introduction and IEBPTPCH
- 320 IEBGENER
- 330 IEBCOPY and IEBUPDTE
- 240 IEHMOVE
- 350 IEHLIST and Additional Utilities

12-380 SYNCSORT OS/VS SORT/MERGE

19-6XX SYSTEM/370 AND EXTENDED ARCHITECTURE

- 610 Main Storage
- 620 The Central Processor
- 630 Input/Output and Virtual Storage
- 640 Secondary Storage
- 650 Operating System Environments

19-0XX THE MVS ENVIRONMENT

- 010 Virtual Storage Concepts
- 015 Virtual Storage Implications
- 020 MVS Job Flow and the System Resource Manager
- 025 MVS Dispatching and Multiprocessing
- 030 JES2 Job Flow, Facilities, and Control Statements

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PROGRAMMING LANGUAGES

Courses in this group provide students knowledge of different programming languages. Application systems within the user environment determine the requirements for which languages computer programmers should learn. Students are expected to know introductory concepts of ADP before registering for any course in this group.

Introduction to Programming Using SAS

Course Code: 600L Format: Lecture

Prerequisite: Mainframe Processing at PCC;
Elementary statistics

Time: Fifteen hours

Content: SAS is a computer system for data analysis. Students examine the logic of how SAS processes data and study the components of typical SAS jobs including data management, report writing, SAS/GRAPH.

Introduction to APL2 (A Programming Language)

Course Code: 358L Format: Lecture

Prerequisite: Introduction to ADP

Time: Nine hours

Content: APL2 is an interactive terminal-oriented symbolic language basically designed for scientific, mathematical, and business applications. APL2 runs under the TSO environment at PCC. This course presents the fundamentals of the APL2 language, its use, and the availability of mathematical and scientific routines in the APL2 software library.

Intermediate APL2

Course Code: 359L Format: Lecture

Prerequisite: Introduction to ADP; APL experience

Time: Twelve hours

Content: This course begins with a brief review of the functions in APL2. Topics include methods for sorting, selecting, and indexing of both numeric and non-numeric data, shared variables, auxiliary processors for the manipulation of data in APL2, picture formatting, graphics, and batch APL2.

Using SAS: Display Manager System

Course Code: STUSE1 Format: CBT

Prerequisite: Introduction to ADP

Time: Five hours

Content: This course is the first of a series of four SAS CBT courses. It provides an overview of SAS features and presents the fundamentals to begin using the SAS language.

1: Introducing SAS
2: Getting ready to use SAS
3: The data step
4: SAS PROCS
5: DMS and submitting SAS jobs
6: Other SAS features
7: Final summary

Using SAS: The SAS Language

Course Code: STUSE2 Format: CBT

Prerequisite: Display Manager System

Time: Seven hours

Content: This course is the second in this series of SAS CBT courses. It provides the rationale for reporting from SAS datasets. More advanced topics are found under the heading STATISTICAL and DATA ANALYSIS SYSTEMS.

1: Listings and reports
2: SAS language statements
3: Reshaping data for SAS
4: SAS datasets and libraries
5: What can go wrong
6: Final summary

APL Programming

Course Code: APL-CBT Format: CBT

Prerequisite: Introduction to ADP

Time: Fourteen hours

Content: This course provides the fundamentals of using APL functions to write programs. Students must be registered APL users.

Programming

Prerequisite: Introduction to ADP Format: AVAI

Time: Two hours for each module

Content: Courses in this group are for computer users who need to learn COBOL, PL/1, or FORTRAN. Students may select among the many languages offered.

PROGRAMMING LANGUAGES

26-2XX STRUCTURED ANS COBOL: ENTRY-LEVEL

210 Basic COBOL Coding Techniques
220 COBOL File and Data Definition
230 Program Logic in COBOL
240 Compiling the Program
280 COBOL Arithmetic
290 Sequential File Processing
300 COBOL Debugging Facilities
320 Coding Report Programs
330 Report Writer - Detail Reports
335 Report Writer - Summary Reports
350 Program Control
370 Coding Table Programs
380 COBOL Sort/Merge

26-5XX STRUCTURED ANS COBOL: ADVANCED

510 Modular Programming
520 Symbolic Debugging
530 Advanced Program Control
540 Advanced Data Manipulation

26-6XX STRUCTURED ANS COBOL: EFFICIENCIES

610 Efficiencies - I
620 Efficiencies - II

26-4XX COBOL: NONSEQUENTIAL FILES IN COBOL

410 ISAM File Organization
420 COBOL ISAM File Processing
430 Direct and Relative File Organization
440 Randomizing Algorithms
450 COBOL Direct and Relative File Processing
460 VSAM File Organizations
470 COBOL VSAM File Processing

PROGRAMMING LANGUAGES

26-9XX VS COBOL II: SOFTWARE UPDATE

910 VS COBOL II Overview
920 VS COBOL II Programming Feature

14-2XX THE PL/1 SERIES

210 PL/1 - The Language
220 Basic I/O and Processing Statements
230 Data Declaration
240 Compiling and Executing - I
250 Compiling and Executing - II
260 Data Comparison and Decision Structures
270 Data Movement and Arithmatic Expressions
280 Internal Blocks and Procedures
290 External Blocks and Procedures
300 Data Conversion
310 File Declaration
320 STREAM I/O
330 RECORD I/O
340 Arrays
350 Indexed Files
360 Regional Files
370 VSAM Files

31-7XX THE FORTRAN SERIES

710 Introduction to FORTRAN
720 The Basic FORTRAN Program
730 FORTRAN I/O Techniques
740 Selection Structures in FORTRAN
750 Iteration Structures in FORTRAN
760 Subscripted Variables in FORTRAN
770 FORTRAN Subprogramming
780 Advanced Data Handling in FORTRAN
790 Tape and Disk Files in FORTRAN
795 Mathematical Applications in FORTRAN

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DATA BASE MANAGEMENT SYSTEMS

Courses in this group characterize different Data Base Management Systems (DBMS). Each DBMS has processing methods that include both online and batch processing procedures depending on user and application systems needs. Before registering for any of these courses, students should reference the PCC User's Guide to determine the procedures necessary to use the DBMS. Students must know introductory computer concepts.

MODEL204

Course Code: 511L Format: Lecture

Prerequisite: Programming experience; Student's organization has a MODEL204 data base

Time: Eighteen hours

Content: This course presents MODEL204 user language commands coupled with terminal operations. Topics include learning SIGN-ON procedures, opening and closing files, invoking previously written report requests, selecting and counting records, formatting reports, using arithmetic and conditional operations, updating and storing data, and using the editor. Class periods contain lectures and practical experience using an existing data base.

Introduction to ADABAS/NATURAL

Course Code: 550L Format: Lecture

Prerequisite: Programming experience

Time: Twenty hours

Content: This introductory course is designed to familiarize the student with the features and capabilities of ADABAS and NATURAL. It discusses the structure of ADABAS, how to establish files at PCC, using NATURAL system commands and editors, and NATURAL programming techniques.

DATA BASE MANAGEMENT

ORACLE SQL*PLUS

Course Code: 575L Format: Lecture

Prerequisite: Programming experience

Time: Twelve hours

Content: This course provides an overview of the ORACLE Relational Database Management System and introduction to SQL*PLUS. Students will also use ORACLE's SQL*PLUS to create, maintain and query Relational Database Tables during the hands-on workshops.

ORACLE SQL*FORMS

Course Code: 580L Format: Lecture

Prerequisite: ORACLE SQL*PLUS experience

Time: Twelve hours

Content: This course provides lecture and workshop for SQL*FORMS (ORACLE Application Development Software). Students will develop full-screen applications through SQL*FORMS for both data input and data retrieval during the workshops.

Data Base Management Systems

Prerequisite: Programming experience Format: AVAI

Time: Two hours for each module

Content: Courses in this group provide students with the concepts, principles of operation, and methods of constructing data base systems. Within each DBMS series are modules that explain data base access languages, data dictionaries, security, and recovery procedures. Students may select an entire series or any part of a series.

DATA BASE MANAGEMENT

24-0XX DATA BASE SYSTEM PROJECT

- 010 Structure of the Data Base System Project
- 020 Planning the Data Base System Project
- 030 The Service Analysis Phase
- 040 The Service Analysis Book

80-52X AN END USER'S GUIDE TO DATA BASE

- 521 Understanding Data Base
- 522 Creating a Data Base
- 523 Using a Data Base

80-51X DATA BASE STRATEGY

- 511 Application
- 512 Design
- 513 Implementation

85-61X DATA BASE AND ORGANIZATION STRUCTURE

- 610 Why Data Base?
- 620 Data Base Concepts
- 630 Managing the Data Base

85-1XX PRINCIPLES OF DATA BASE SYSTEMS

- 111 Logical Data Structures
- 121 Physical Data Structures
- 130 Data Base Management Systems
- 140 Data Dictionaries and Query Software
- 150 Data Base Security and Auditibility

39-0XX RELATIONAL DATA BASE CONCEPTS

85-4XX DISTRIBUTED DATA DESIGN

- 410 Distributed Data Management
- 420 Distributed Data Updating Techniques
- 430 Distributed Data Base Management
- 440 Distributed Application Design

DATA BASE MANAGEMENT

85-2XX DATA BASE ARCHITECTURES

- 210 Representing User Views
- 220 The Canonical Model
- 230 The Relational Model
- 240 The Hierarchical Model
- 250 The Network Model

85-3XX DATA BASE: DATA ANALYSIS TECHNIQUES

- 310 Data Analysis Overview
- 320 Entity Analysis
- 330 Data Modeling

24-3XX DATA BASE LOGICAL DESIGN

- 310 Data Structures
- 320 Entity-Relationship Models
- 330 Specifying Access Structures
- 340 Implementation Considerations
- 350 Logical Design in an IMS Environment

24-2XX SYSTEMS DEVELOPMENT IN A DATA BASE ENVIRONMENT

- 210 Data Base Systems
- 220 Initiating the Project
- 230 Determining User Needs
- 240 Documenting User Needs
- 250 Completing the Project

35-5XX ADABAS CONCEPTS AND FACILITIES

- 510 Introduction to ADABAS
- 520 ADABAS Data Structures
- 530 The ADABAS Associator and Security
- 540 ADABAS Access Logic
- 550 Data Modification and Integrity
- 560 ADABAS Access Facilities and Utilities

STATISTICAL AND DATA ANALYSIS SYSTEMS

Courses in this group cover specialized tools that make the sometimes tedious job of data analysis easier and more effective. The Statistical Analysis System (SAS) designed by SAS Institute has data analysis functions, reporting functions, and graphics functions that can be processed on the personal computer as well as the mainframe. Students should have experience in statistical data analysis coupled with an understanding of programming.

Advanced Topics in SAS

Course Code: 610L Format: Lecture

Prerequisites: Introduction to Programming Using SAS; SAS experience

Time: Ten hours

Content: SAS has a number of enhancements designed to facilitate the production of reports, graphics, and tables. This course covers the use of MACROS, report writing, enhancements to SAS/GRAPH, and various table producing procedures.

FORTRAN based Statistical Systems

Course Code: 615L Format: Lecture

Prerequisites: Mainframe Processing at PCC; Elementary Statistics

Time: Fifteen hours

Content: FORTRAN (FORmula TRANslation) is a commonly used language in scientific and mathematical programming. Major statistical packages such as IMSL are made up of subroutines that require FORTRAN programming. This course briefly introduces the elements of programming in FORTRAN and proceeds directly to the application of FORTRAN using IMSL subroutines.

Using BMDP

Course Code: 625L Format: Lecture

Prerequisite: FORTRAN Based Statistical Systems; FORTRAN experience

Time: Four hours

Content: This course familiarizes the student with the features and capabilities of the BMDP statistical software. The basic JCL and control statements needed to execute BMDP programs interactively and in batch mode are demonstrated. BMDP Save Files and the BMDP interface with SAS are also discussed.

Introduction to SPSS-X

Course Code: 605L Format: Lecture

Prerequisites: Introduction to ADP; TSO experience

Time: Fifteen hours

Content: SPSS-X (Statistical Package for the Social Sciences) is a program of statistical techniques of varying complexity. SPSS-X uses a variety of control statements by which the user can manipulate data files and perform statistical analyses. These analyses can range from a simple data description to multivariate analysis. The various SPSS-X control statements are studied as well as the JCL statements that are required to execute the program.

STATISTICAL AND DATA ANALYSIS

Using SAS: Statistics

Course Code: STUSE3 Format: CBT

Prerequisite: SAS experience

Time: Three hours

Content: This course is the third in a series of SAS CBT courses. (The first two are listed under the heading PROGRAMMING). It explains the statistical functions and simple data graphics procedures.

1: Simple statistics
2: Plotting and bar charts
3: Statistical analysis

Using SAS: Advanced Features

Course Code: STUSE4 Format: CBT

Prerequisite: SAS experience

Time: Five hours

Content: This course is the last in the series of SAS CBT courses. It presents the advanced functions that are used for more complex data analysis and presentations.

1: SAS functions and macros
2: Advanced language features
3: Advanced input features
4: Advanced output and custom reports
5: SAS datasets

STATISTICAL AND DATA ANALYSIS

Using SAS/FSP

Course Code: FULUSE Format: CBT

Prerequisite: SAS experience

Time: Four to seven hours

Content: This course provides techniques using SAS/FSP in letter writing. Through this text processing function it allows end users to browse, search, and modify SAS datasets and to examine computer output through a full-screen terminal.

1: FSP overview
2: SAS refresher
3: Editing and browsing SAS datasets
4: Advanced editing
5: Letters
6: Viewing listings

Statistical Analysis

Prerequisite: Introduction to ADP Format: AVAI

Time: Two hours for each module

Content: Courses in this group should be selected by students who need to learn computer assisted data analysis procedures.

7UM-A99 PRACTICAL DATA ANALYSIS WITH SPSS

A01 Introduction
A02 Cleaning Up Data
A03 Shaping Up Variables
A04 T-Tests and One-Way Analysis of Variance
A05 Factorial Analysis of Variance and Covariance
A06 Multivariate Analysis of Variance and Covariance
A07 More Factor Analysis
A08 Multiple Regression
A09 More Multiple Regression
A10 Multidimensional Contingency Tables
A11 Reporting Results
A12 SPSS/Online

DATA COMMUNICATIONS

Courses in this group examine the concepts of data communications including the role of mainframes and local area networks. Students learn the appropriate terms and technical characteristics of network management as they apply to the end-user community. Students should have some experience using computer equipment before taking these courses.

Data Communications at PCC

Course Code: 700L Format: Lecture

Prerequisites: None

Time: Six hours

Content: This course covers the fundamentals of data communications and teleprocessing. Emphasis is on concepts, techniques, networking, and protocols. Students are given a tour and demonstration of the communication control center of the Parklawn Computer Center.

PC to PCC Communications

Course Code: 715L Format: Lecture

Prerequisite: Personal Computer experience

Time: Three hours

Content: Micro-to-mainframe communications is an increasingly important consideration for a PC user. This course contains a general overview of communications, including hardware and terminology. The PCC Information Center supports many different packages including PROCOMM, PC-TALK III, QMODEM, MTERM, and Forte File Transfer. Students upload and download files using at least three of these products.

DATA COMMUNICATIONS

Data Communications For End Users

Course Code: DCUSER Format: CBT

Prerequisites: None

Time: Two and one-half hours

Content: This course defines the terms and principles of telecommunications necessary for solving data communication problems.

1: What is data communications
2: Why use data communications
3: Components of data communications
4: Remote access computing
5: Distributed systems

Communications and Local Area Networks (LANS)

Course Code: DCCOMM Format: CBT

Prerequisite: None

Time: Two hours

Content: This course describes Personal Computers and Office Systems communication techniques used in Local Area Networks and the requirements for connecting with mainframe processors.

1: The benefits of data communications
2: Functional areas of communication
3: Networks
4: Connectivity issues
5: Technical issues

DATA COMMUNICATIONS

Communications and Distributed Processing

Prerequisite: None Format: AVAI

Time: Two hours for each module

Content: Courses in this group describe the components of computer systems networks. Students may select an entire series or any part of a series.

84-1XX COMMUNICATION NETWORK TECHNOLOGY

- 110 Data Link Protocols
- 120 Multiplexing and Switching Techniques
- 130 Data Communication Software
- 140 Data Communication System Design

84-2XX PRINCIPLES OF DATA COMMUNICATIONS

- 210 Data Communications: An Overview
- 220 Data Transmission Techniques and Media
- 230 Data Communications Networks
- 240 Data Communications Architectures and Protocols
- 250 Personal Computer Communications

80-20X NETWORK STRATEGY

- 201 Communication
- 202 Technology
- 203 Management

25-1XX DISTRIBUTED DATA PROCESSING: A MANAGEMENT REVOLUTION

- 110 Euphoria
- 120 Alarm
- 130 Control

DATA COMMUNICATIONS

81-22X NETWORK ARCHITECTURES

- 221 Trends
- 222 SNA
- 223 ACS

82-0XX PRINCIPLES OF DISTRIBUTED DATA PROCESSING

- 010 Distributing the Data
- 020 Distributing the Processing
- 030 Public and Private Networks

82-3XX DISTRIBUTED NETWORK ARCHITECTURES

82-1XX COMPUTER NETWORK SOFTWARE FUNCTIONS

- 110 Architectures for Distributed Data Processing
- 120 Layers of Control in Network Software
- 130 Transport Subsystem Layers
- 140 Termination Subsystem Layers

82-2XX COMPUTER NETWORK SOFTWARE MECHANISMS

- 210 HDLC and SDLC
- 220 Packet Switching
- 230 Network Control Mechanisms
- 240 CCITT Recommendation X.25

82-4XX IBM'S SYSTEMS NETWORK ARCHITECTURE (SNA)

- 410 Overview
- 420 SDLC
- 430 Transmission Subsystem
- 440 Higher Level Functions

DATA PRESENTATION, GRAPHICS, AND PLOTTING

Courses in this group describe the methods of reporting and data presentation using different computer software coupled with hardware available at PCC.

TELL-A-GRAF

Course Code: 380L Format: Lecture

Prerequisite: TSO experience

Time: Fifteen hours

Content: This course contains basic through advanced options of TELL-A-GRAF and their operation in batch and interactive modes. Hands-on practice sessions include CUECHART, CUEDRAW, TELL-A-GRAF, TELLAPLAN, and DATA CONNECTION. Post processors and File Utilities are also discussed.

Using TELL-A-GRAF

Course Code: TGUSER Format: CBT

Prerequisite: None

Time: Six hours

Content: This course teaches nontechnical users to create professional looking graphics using linear plots, bar charts, and pie charts. It also covers text block manipulation and advanced data layout features through writing TELL-A-GRAF commands.

1: Introduction to TELL-A-GRAF
2: Entering data and TELL-A-GRAF commands
3: Generating a plot
4: Generating a bar chart
5: Generating a pie chart
6: Page of text
7: More on using TELL-A-GRAF
8: More on plots
9: Advanced TELL-A-GRAF features

Using SAS/GRAPH

Course Code: SGUSER Format: CBT

Prerequisite: SAS experience

Time: Ten hours

Content: This course is designed for advanced graphics presentations of data which includes generating graphics from regression analysis, creating three-dimensional plots, and making slides for special presentations.

1: Introduction to SAS/GRAPH
2: SAS refresher
3: Charts in SAS/GRAPH
4: Global statements
5: Plots
6: Plots of three variables
7: Maps
8: Special features
9: Annotate datasets

ADP SYSTEMS DESIGN AND MANAGEMENT

Courses in this group present up-to-date concepts that are applied to ADP project management, systems analysis and design, and computer programming.

Principles of Project Management

Course Code: MANAGE Format: CBT

Prerequisite: None

Time: Three hours

Content: This course addresses basic management techniques for defining an approach for project development, allocating resources, and reporting accomplishments.

1: Thinking about project management
2: Working with project management
3: More work with project management

Structured Analysis and Productivity

Prerequisite: None Format: AVAI

Time: One hour for each module

Content: Courses in this group explain analysis, design, and management concepts that discipline application systems development and management. Students may choose an entire series or any part of a series.

11-0XX STRUCTURED TECHNIQUES: AN OVERVIEW

010 Introduction to Structured Techniques
020 Relationships Among Structured Techniques
030 A Management View of Structured Techniques

11-2XX STRUCTURED PROGRAMMING

212 The Team: Implementation
214 The Team: Interpersonal Dynamics
220 Top-Down Program Design and Development - I
230 Top-Down Program Design and Development - II
240 Hierarchical Input-Process-Output (HIPO)
250 Warnier Diagrams
300 Structured Programming in COBOL - I
310 Structured Programming in COBOL - II
320 Structured Programming in PL/1 - I
330 Structured Programming in PL/1 - II

11-6XX STRUCTURED DESIGN

600 Introduction to Structured Design
610 Structured Design Tools
620 Coupling and Cohesion
630 Design Guidelines
640 Transform Analysis
650 Transaction Analysis
660 Implementation Packaging and Optimization Techniques
670 Compatibility with other Structured Techniques

11-7XX STRUCTURED ANALYSIS

710 Basic Concepts of Structured Analysis
720 Data Flow Diagrams - I
730 Data Flow Diagrams - II
740 Data Dictionary
750 Structured Tools to Express Logic and Policy
760 Data Flow Transformations
770 Looking Ahead to the Later Project Phases

27-0XX SYSTEMS DEVELOPMENT

010 The Systems Development Process
020 Defining User Requirements
030 Establishing Strategies
040 Preliminary Design
050 Detailed Design
060 User/System Interfaces
070 Computer Subsystem Development
080 Systems Implementation

ADP SYSTEMS DESIGN AND MANAGEMENT

27-2XX COST/BENEFIT ANALYSIS

- 210 Investment Analysis
- 220 Cost of the Present System
- 230 Costs and Benefits of the Proposed System
- 240 Cost/Benefit Analysis Techniques

25-31X MEASURING PROGRAMMER PRODUCTIVITY

- 311 Productivity Issues
- 312 Measuring Techniques
- 313 Productivity Techniques and Structured Technologies
- 314 Productivity Techniques for Maintenance

25-41X MANAGING DP PRODUCTIVITY GAINS

- 411 Identifying Opportunities
- 412 Establishing Productivity Principles
- 413 Converting Principles to Practice

80-62X INCREASING DP PRODUCTIVITY

- 621 Software Approaches
- 622 Systems and Organizational Approaches
- 623 Development Life Cycle Approaches

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COMPUTER AND DATA SECURITY

Courses in this group give an overview of controls necessary to implement security procedures in today's office environment. Each course takes approximately one hour and may be shown to twenty people at once.

Prerequisite: None Format: AVAI

80-61X CORPORATE COMPUTER SECURITY STRATEGY

- 611 Threats
- 612 Techniques
- 613 Strategies

81-61X COMPUTER SECURITY TECHNIQUES

- 611 Physical Controls
- 612 Logical Controls
- 613 Administrative Controls

86-0XX SYSTEMS SECURITY DESIGN TECHNIQUES

- 010 The Nature of the Problem
- 020 Administrative and Legal Controls
- 030 Physical Controls
- 040 Logical Controls on Transactions and Data
- 050 Logical Controls on Data Networks
- 060 Computer Fraud

52-0XX AUDITING EDP SYSTEMS

- 010 What is EDP Auditing?
- 020 Identifying, Documenting, and Evaluating Controls in Computerized Systems
- 030 Risk Analysis and the EDP Security Assurance Review
- 040 EDP Auditing Tools and Techniques
- 050 Auditing Data Communications Networks and Distributed Systems
- 060 Auditing Data Base Systems

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User ID_____ Agency Code_____ Agency_____

Course Title_____ Course Number_____

Supervisor_____ Telephone_____
Signature

ADP Coordinator_____ Telephone_____
Signature

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HEALTH & HUMAN SERVICES**

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